ENVIRONMENTAL ASSESSMENT

PURE SUNSHINE INC.

FRUIT JUICE & FOOD PROCESSING, PACKAGING, WHOLESALE DISTRIBUTION, RETAIL MARKETING AND TECHNICAL ASSISTANCE PROGRAM.

KIEV, UKRAINE

Under the auspices of

Citizens Network for Foreign Affairs, Kiev, Ukraine

and the

United States Agency for International Development

Cooperative Agreement No. 121-0006-A-00-6238-00

By

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(1) SUMMARY

Pursuant to the USAID Regulation 216 22 CFR 216.2, The Orange Juice Processing and Dairy Upgrade Project Proposal of Pure Sunshine, Inc. under the guidance of the Agricultural Production II Project of the United States Agency for International Development operating under Cooperative Agreement No. 121-0006-A-00-6238-00 with Citizens Network for Foreign Affairs, received a categorical exclusion from USAID for Technical Assistance related to the fruit juice processing, packaging, management, distribution, marketing promotion and retail training, plus preliminary planning, organization and management of subgrant activities.

The project also received a positive determination for negative environmental impacts for the construction and remodeling of two retail stores, and operation and upgrading of a radiation, microbiological and quality control laboratory at the dairy processing plant with USAID purchased equipment and supplies. Thus, a site specific Environmental Assessment was required, and this document complies with those requirements.

Upon two examination visits to the dairy, the laboratories and four retail outlets slated for "renovation," the activities listed in the Scope of Work for the Pure Sunshine Orange Juice Production and Retail Sales Networks are not expected to result in significant negative environmental impacts. In fact, the Project activities are expected to result in significant positive environmental impacts by providing a large portion of the populace of Kiev, Ukraine with nutritious reconstituted orange juice and upgrading essential dairy infrastructure that is currently operating at near idle capacity.

Examination of the new bottling line to be used for reconstituting orange juice, the existing milk lines, cold storage facility, and mixing and pasteurization equipment revealed adequate cleanliness and environmental protection. A water quality test dated 7 February, 1997 from three new wells at the plant drilled specifically for the project revealed good water quality (See Water Quality Analysis in Annex). All effluents from the dairy, which consist of washings, employee bathroom flushings and storm runoff currently empty into the Kiev Central Water Treatment Plant in standard hookups, and therefore do not constitute an environmental danger. The operating condition of the Kiev Water Treatment plant is unknown but is not within the purview of this EA. The dairy activities related to the project will not create significant new air emissions, and because the process involves rehydration of imported orange concentrate, no appreciable amounts of solid organic matter will be produced. Packaging is efficient, and will not result in significant amounts of discards. The plant is relatively quiet, and the additional noise from the orange juice line, plus truck traffic will not nearly approach previous noise levels when the dairy was operating at a larger capacity. There is currently an underutilized highway transport system, and we envision no transportation problems. The effects of facility development on aesthetics and visual quality are positive for aesthetics and visual quality. The upgrading of the stores will improve the scenery on a local scale around and in each market. The project will not visually impact the existing plant. The local community or government is currently prepared to provide emergency response services. The project will not tax medical facilities.

The laboratory upgrading of new equipment and reagents will improve quality control. The laboratories are clean, have adequate fume hoods ventilation, chemical disposal sinks and storage facilities to avoid negative impacts from analyses and activities. The renovation of several retail stores within the time frame of the cooperative agreement is so minor that this will not result in negative environmental impacts. The renovations will consist of the placement of refrigerated display cases, painting some stores and rearranging the merchandise.

The three laboratories at the dairy plant are to be upgraded through equipment and reagent purchases. The laboratories are in good working condition at present, well enough to be up graded easily by said purchases. There are several mitigations deemed necessary in the laboratories which are connected in parallel by doorways, and hall way doors. The suggested mitigations are: 1) warning signs must be placed on the doors where reagents are being stored explaining that caustic reagents are being stored inside; 2) The microbiology and product quality laboratories must be equipped with fire extinguishers, and finally; 3) the microbiology and quality assurance reagents must be stored on wooden pallets or on acid-base resistant plastic, and not just on the cement floors. Retail store renovation, when using paint, must not use lead-based paint, and no asbestos-containing roofing, insulation nor wall board materials can be used.

Therefore, it is considered, pursuant to the requirements of 22 CFR Regulation 216, that the planned project activities within the contract period of one year would not result in any negative impacts to the environment. Pending contract extension or renewal, after the one year period and/or the introduction of other foodstuffs in the processing system, such as apple juice or tomato juice, which would require extraction from fresh commodities resulting in a load of organic wastes and the construction of new stores, a continuing

environmental analysis is warranted.

(2) PURPOSE

The purpose of the Pure Sunshine, Inc. Proposal is to improve an orange juice packaging system and laboratories located at the Kiev Dairy Plant Number Three located in a suburb of Kiev. Several retail outlets for milk and orange juice will be renovated with refrigerators and display cases and painted. In addition, Technical Assistance will be given to several other dairy processing plants in the region emphasizing modern dairy and fruit juice production and processing methods. The project will upgrade the sales force for the orange juice business including a vehicle, either a car or insulated truck, and by hiring new salespersons to expand sales. Finally, a promotional campaign will be started to improve awareness for the orange juice products.

(3) ALTERNATIVES INCLUDING THE PROPOSED ACTION

Alternative 1. No Action Scenario.

The Kiev Number 3 Dairy plant located on the outskirts of Kiev at Vishnevy is the largest dairy processing plant in the Ukraine. The dairy was previously state owned, but is in transition to become a joint holding company. The dairy had an original daily capacity of 600 metric tons of milk and milk products. This capacity is enough to supply milk to about one-third of Kiev. The plant is 22 years old and could be classified as a Grade B dairy. The dairy has a large pasteurization facility, bottling lines, and cold storage. The plant contains ample storage and mixing tanks for cooled products, totaling 46 mixing tanks with the capacity of 6 metric tons per tank, and one very large holding tank of 20 metric tons that also can be used as a mixer. All of the tanks are insulated and made of stainless steel. The temperature of the produce can be maintained for 20 hours. Pure Sunshine, Inc, and the Dairy have added compressors to an existing cooler room to convert it into a freezer storage unit. The installation of centrifuge pumps was necessary on all of the pasteurization equipment to accommodate proper pressure and product flow. The milk products and orange juice are sold primarily in about 200 retail outlet stores owned by the state, as well as other private retail outlets; primarily small stores, restaurants and bars. In addition to milk, Kifer and cream of high quality are produced.

Since 1991 and the declaration of independence from the Soviet Union, the plant has declined rapidly in production capacity. Because there was a sharp decline in grain production, the dairy herds were reduced drastically in size. Now, the dairy plants cannot receive enough raw milk to meet demands, nor to run at capacity. The daily production was reported by the Plant Director to be about 60 tons per day, but when we visited the plant, only one line capable of 17.5 tons per day was operating. Therefore, it is thought that the daily production is considerably less than 10 percent of capacity. This drastic reduction has resulted in unemployment, and a gradual decline in the quality of the dairy machinery. The sewer system currently in Kiev was built with the dairy capacity in mind.

At the retail store level, many of the current milk shops are dark and dirty. Back room storage is inadequate, and refrigerated products are often held at ambient temperature. This reduces shelf life, and accelerates spoilage. Other brands of orange juice are present in the private stores. These are manufactured abroad, and are expensive. The current market demand is not being met, resulting in inflated costs for products.

Infrastructure left idle is prone to lose needed maintenance when production is not taking place. Without improved supplies of raw milk, it is foreseeable that the dairy plant number three, as well as other dairies in the Ukrained will continue to deteriorate in value rapidly thus losing patrimonial national economic values.

Alternative Number Two. The Proposed Project

Substantial investment has already occurred at the dairy by Pure Sunshine, Inc. to rehabilitate the

lines, in order to make them suitable for the processing of orange juice. A marketing promotional program is planned to create a demand for the new products. The current capacity of the new line and cooling facility is 17.5 metric tons per day. Presently, the line is not operating at full capacity. However, the objective of the project is to realize full capacity. The installed equipment is brand new, including centrifuges, a packaging line and cooler compressors. The cool rooms have been installed with additional compressors to create freezer space. Part of this investment was made by the dairy, and part by Pure Sunshine, Inc. The project utilizes the present buildings and equipment of the dairy, upgrading and improving the system through general maintenance. Rehabilitation existing infrastructures takes advantage of the good parts of the dairy, and is upgrading it with more modern equipment.

The three laboratories are reasonably adequate, although there is need for additional equipment and reagents. The laboratories are built with white ceramic tiles for the most part, easy to keep clean, and resistant to chemicals. The laboratories appear to be in good condition, but need upgrading. The technicians appeared to be well trained, and capable of an additional work load as represented by the project. The chemical hoods are adequate to provide ventilation to the outside, located on the second floor of the building, and the sinks for pouring spent reagents are adequate; specially made for caustics. The chemical storage closet were adequately ventilated, but the chemicals themselves need to be stored better, preferably on plastic or wooden pallets.

Some current laboratory tests are: radiation levels, tests for brix (sugar), mixing different Brix levels to achieve a consistent product, test microbiological levels, test pasteurization temperature to minimize Vitamin C loss, control of freezer and cooler temperatures, plus other tests. Radiation levels have never exceeded a level of ten times lower than the human health standard for children. Water quality fot eh three deep wells is good, with about 0.5 ppm fluoride, nor radiation, with coliform counts within the standard for human health.

Long term plans for the rehabilitation in operation of the dairy include Ice cream, Kifer cheese, yogurt, pasta products and pizza. Other fruit juices are being discusses in the rehabilitation plans including tomato and apple juice.

CHOICE OF ALTERNATIVES

The proposed project will significantly improve the existing situation in a major dairy processing plant bringing the facility towards its preferred production levels. The renovations of the retail outlets are little more than the installation of a few refrigerator cases, cosmetic painting of the stores and rearranging merchandise, These activities will occur within the next year; the contract period. Leaving the dairy plant in its present condition would not be favorable for the economy of Kiev and the Ukraine, but would also tend to continue a downward spiral that is rapidly resulting in increased poverty and unemployment in the country.

Therefore, Alternative Two (the proposed project) is the preferred choice. Should the contract be renewed or extended, with new activities planned, such as the construction of new retail outlets and the introduction of new fruit types including apples, tomatoes or cranberries from raw materials requiring extraction and subsequent accumulation of waste products, further environmental analysis will be mandatary concomitant with mitigation measures. Mitigation measures for the proposed project are minor, as follow.

MITIGATION MEASURES RECOMMENDED FOR THE PROJECT

Recommended mitigations for the laboratories include: 1). Special warning signs need to be posted for the chemical storage rooms; 2) Fire extinguishers need to be purchased for two of the three laboratories; 3) Personnel working with caustic substances must be outfitted correctly with protective clothing, including rubber gloves, and safety chemistry glasses. 4) An optional mitigation would be the installation of an emergency shower in case of an accident in the laboratory with caustics. 5) Paints used in the remodeling process cannot be lead based. 6) No asbestos roofing nor asbestos containing wall board can be used in the retail outlets.

Records and accounting for laboratory results should be entered into the existing computer system set up for

the project.

(4) AFFECTED ENVIRONMENT

The orange juice production facility is located within Kiev Dairy Plant Number Three located some 40 kilometers from the center of Kiev in the Suburb of Vishnevy, 7 Promyshlennaya St. (see map). This suburb is heavily developed with large Soviet Style apartment buildings, and has a multitude of industries. Within about a half kilometer from the dairy plant is a large electrical generating plant that uses diesel oil and gas for fuel. Various other industries are located nearby, but there are no heavy industries such as chemical plants. No smelters, refineries nor metal forging are nearby. The countryside is flat to rolling hills, checkerboarded in agricultural lands, with many small garden plots. Soils are generally black chnerozems or yellow gravelly sediments. New construction of condominiums and individual private dwellings is increasing. There doesn't appear to be any sort of organized zoning or planning in operation.

Bird species observed were the grey European crow and another species of black crow, magpies, English sparrows, Rock pigeons, and northern chickadees. Partridges, jays and white storks are reported to inhabit nearby woods and marshes. There is a variety of raptors and song birds An extensive wooded zone lies within a few kilometers of the plant, and there is reported to be extensive avi-fauna and fauna in the deciduous forests, which has species such as chestnuts, oaks, hornbeam, birch, some spruce and Scotch pine. Woodland lilies, ferns and others may be present, and an occasional Red Russian Code species is reported (Table 1). Common cultivated plants include Lombardy and other poplars, weeping willows, oaks, maples, hornbeams, chestnut, elms (?), beech, some conifers such as black spruce and blue spruce, lilacs, roses, bridal veil etc. Fauna reported in the not too distant woods include marten, fox, beaver, deer, elk (moose), and European boar. None of these species will be affected by the dairy plant, since the facility has already been in existence for several decades, and is some distance away from their habitats.

A partial List of species in the general vicinity of Kiev is listed in Table 1.

TABLE 1 *

PLANT LIFE

1. Forest Vegetation

A. Coniferous and Platyphyllous-coniferous forests.
a. Pine Forests (scotch pine and green moss in combination with cereals, lichen, bracken fern).
b. Oak Pine forests (bracken fern, mixed grass).

B. Deciduous Forests
a. Oak-hornbeam forests (oak in combination with grass-scarce species, woodruff, common goatweed, sedge, weasel snout, wild ginger).
b. Cultivated deciduous forests predominantly with hornbean, sharp-leaved maple, oak in combination with introduced tree (grass-scarce) species.

2. Flood Plain Vegetation

A. Water meadows (flow and marshy meadows), osier beds, flood plain forests and reservoirs.

3. Park Vegetation
A. Park and forest-park plantations predominantly with sharp-leaved maple, horse chestnut, poplar (black, white and pyramidal), Robinnia, linden, decorative shrubs and other species, with remnants of natural vegetation.

4. Orchards

Apples, walnuts, plums, sweet cherries, and grapes, are common orchard species

5. Nursery
Some intensive plantations of poplar for firewood were observed.

There are a number of rare plant species protected by law in Kiev's green zone, including:

Wood lily
Mumwort grape-fern
Platanthera bifolia
Epipactis platyphyllous
Horsetail (Equisetum)
Birch (Betula lectus)
Snowdrop (Galanthus alba)
Corydalis and Dutchman' s breeches

Common major plant species include:

Cherry Plum (Prunus divaricata)
Bird Cherry
Golden Current
Red-berried Elder
Sour Cherry
Blue Honeysuckle
Horse Chestnut
Lilac
Rowan
Hawthorn
Snow-ball
Guelder Rose (Viburnum)
Prickly Rose
Black berried elder
Double lilac
European linden
Fine-leaved linden

II. FAUNA
1. Mammals
Fox
Stone marten
Wood marten
Otter
Wild boar
Roe Deer
Elk (moose)
Hare
Beaver
Squirrel
Muskrat
Hedgehogs
Mole
Mouse-like rodents
Bats

2. Birds

Gray heron
Mallard
Goshawk
Windhover
Hobby
Partridge
White Stork
Gray Owl
Woodpeckers
Chimney swift
Cuckoo
Collared dove
Passerine birds (whitethroat thrush, swallow, sparrow, starlings, finch, gray crow, black crow, chickadees, magpies and others.

3. Reptiles and Amphibians

Widespread mostly in the forest-park zone are mud turtle, lizard, grass snake, frog, newt, and others.

4. Fish

Lakes and ponds abound in carp, tench, loach, perch, roach, rudd, pike, bleak, etc. In the Dinipro River and its inlets, live pike, bleak, roach, rudd, gudgeon, bream, sheat, pile, perch, perch, ruff etc.

Up to twenty animal species entered in the UrkSSR Red Data Book of the International Union for Nature Conservation (IUCN). can be found in the Kiev area permanently or transitorily, among them some varieties of bats, birds, (e.g. eagle-owl, short toed eagle), insects (e.g. Bombyx) and others.

*Source "Kiev - Atlas for Tourists." 1989. Main Administration of Geodesy and Cartography, Under the Council of Ministers of the USSR, Moscow.

Species epitaphs and a more inclusive listing of species are not available at this time.

(5) ENVIRONMENTAL CONSEQUENCES

No negative foreseeable environmental impacts will occur as a result of project activities. In the case of spillages, adequate sewers exist which lead into the Central Kiev water treatment plant, and adequate hoses are present to clean up any spills. A thorough emergency action plan exists which is well posted throughout the plant, including actions for fires and nuclear blasts.

The overall environmental consequences are expected to result in improvements, since large idle food processing plants and equipment represent a capital waste, resulting in unemployment and resultant increased crime rates. In addition, undernourished children as a function of milk and vitamin C deficiencies are more susceptible to disease, cannot learn normally, and this creates environmental and social problems far beyond the operation of this dairy and juice plant.

(6) LIST OF PREPARERS

The CNFA Former Environmental Advisor prepared the Initial Environmental Evaluation, and Scope of Work for the Environmental Assessment, and Dr. Wayne Williams completed the Environmental Assessment. Dr. Williams is currently the environmental advisor for Citizens Network for Foreign Affairs projects in Kiev, Ukraine. He has extensive experience in the Environmental Assessment field, successfully completing several dozen Environmental Assessments for USAID in Central America from 1991 through 1995 in his capacity as Regional Environmental Advisor for USAID/ROCAP in Guatemala. These and other Environmental Assessments completed by Dr. Williams covered the widest possible range of topics including medical clinics construction, solid and liquid waste disposal, public health and other projects including large

and medium sized industrial operations, including electrical power generating plants. Dr. Williams has designed, built and supervised several technical laboratories.

(7) APPENDIX

a) Initial Environmental Evaluation
b) Scope of Work for Pure Sunshine EA
c) Drinking Water Analysis dated 7 February, 1997 of 3 wells located at dairy plant, Vishnevy, Promyshlennaya St. 7.